HP MSM775 zl Controller Installation Guide

Abstract

This document describes how to install and initially configure the MSM775 zl Premium Controller (J9840A), hereafter referred to as *controller*. See also the *MSM7xx Controllers Configuration Guide*.

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www.hp.com/support/Networking-Warranties

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1 Preparing for installation

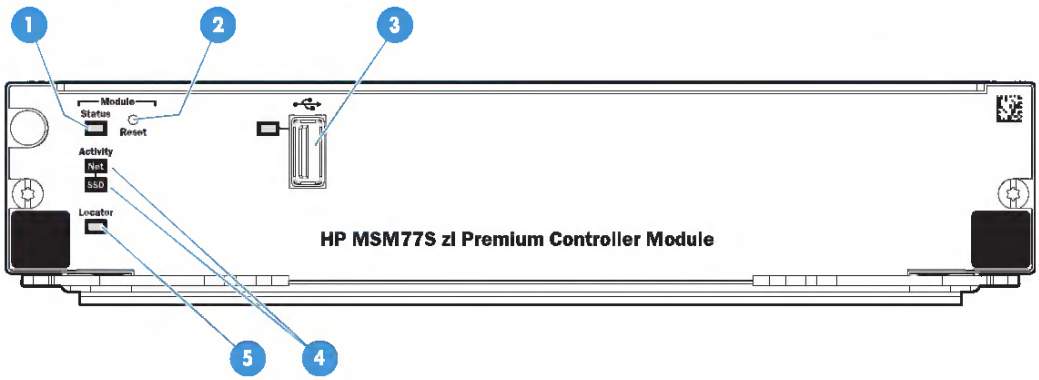
The MSM775 zl Premium Controller is a Services zl Module-based WLAN controller that plugs into switches such as the 5406 zl and 8212 zl. New switches need to be prepared according to their documentation.

NOTE: The MSM775 zl Controller requires software Version K.15.13 or later on the switch.

Identifying controller components

Front panel and LEDs

Figure 1 Controller front panel



1. Module Status LED
2. Module Reset button
3. USB port (not used)
4. SSD Activity and Network Activity LEDs
5. Module Locator LED

Front panel LEDs indicate the following:

LED	State	Meaning
Module Status (green/orange)	On green	The controller is ready.
	Flashing green	The controller is starting or has booted into the service OS.
	Flashing orange	An error has occurred.
	Off	The controller is powered off.
Module Locator (blue)	On	The `services <slot-id> locator on` command was issued to assist in finding the controller.
	Flashing	The `services <slot-id> locator blink` command was issued to assist in finding the controller. **Note:** The flashing duration defaults to 30 minutes, but can be set anywhere from 1 minute to 1440 minutes.
	Off	Default state. Otherwise, the `services <slot-id> locator off` command was issued or a previous blink request has timed out.
SSD Activity (green)	Flashing	The SSD is active.
	Off	The SSD is not active.
Network Activity (green)	Flashing	There is network activity on one or both internal ports.
	Off	There is no network activity on either internal port.

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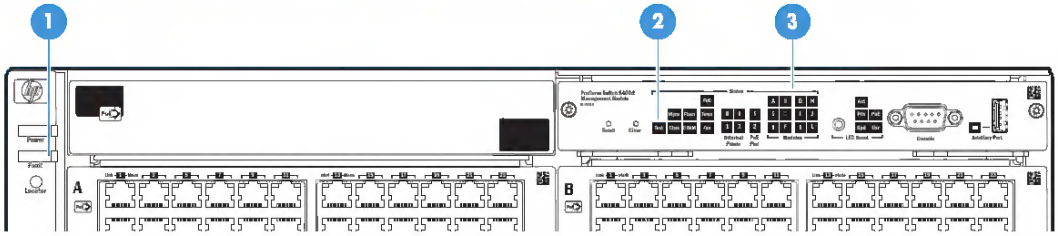
Switch LEDs

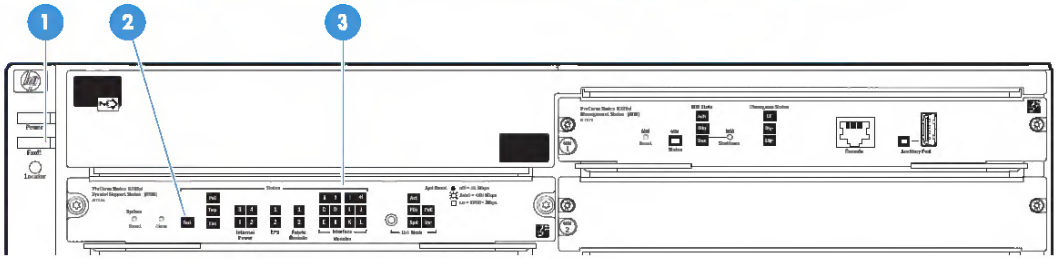
The following figures show the location of the Fault, Test, and Module Status LEDs on the switches in which the controller can be installed.

Figure 2 Fault, Test, and Module Status LEDs on a Series 54xx zl switch



1. Fault LED
2. Test LED
3. Module Status LEDs

Figure 3 Fault, Test, and Module Status LEDs on a Series 82xx zl switch



1. Fault LED
2. Test LED
3. Module Status LEDs

Serial number

The serial number is required when contacting HP or a reseller for warranty assistance or for coverage under a service agreement. Record the serial and product number for future reference. See the warranty information for coverage details.

The serial number for the controller is located on the bottom of the controller. The serial number of the controller can also be found in the management tool or through the CLI.

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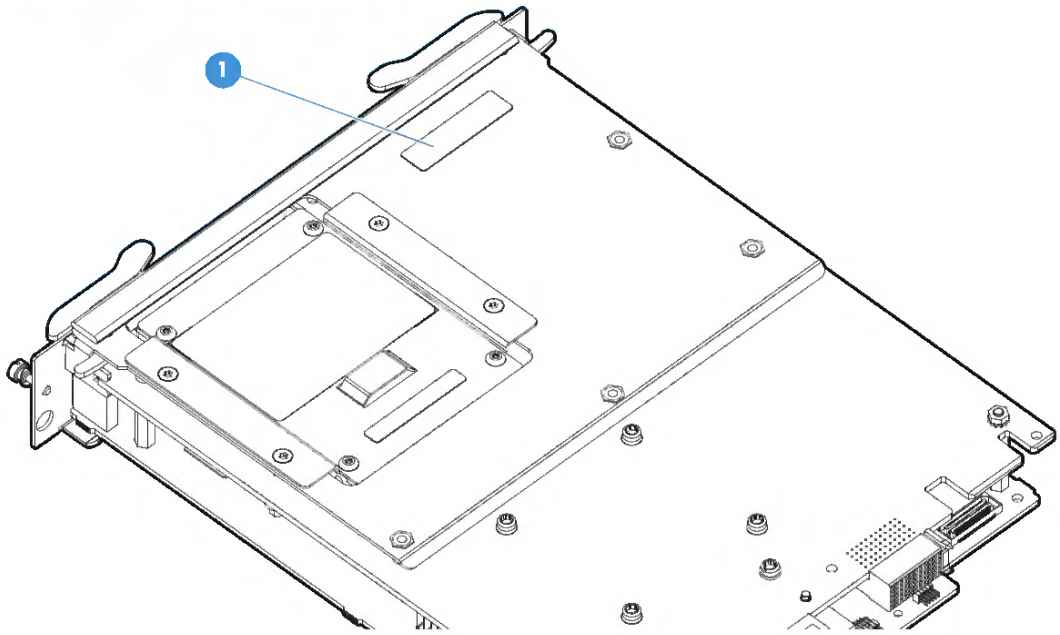
Figure 4 Locating the controller serial number



1. Controller seriol number (SN: SGxxxxxxxx)

Installation precautions

- Stotic electricity con severely domoge the electronic components on the controller. When hondling ond instolling the controller, follow these procedures to ovoid domoge from stotic electricity:
  - Hondle the controller by its bulkheod or edges ond ovoid touching the components ond the circuitry on the boord.
  - When instolling the controller, equolize ony stotic chorge difference between your body ond the switch by weoring o grounding wrist strop ond ottoching it to the metol body of the switch, or by frequently touching the metol body of the switch.
- For sofe operotion, proper switch cooling, ond reduction of electromognetic emissions, ensure thot o slot cover is instolled on ony unused controller slot. For sofety, be sure thot no more thon one slot is uncovered when the switch is powered on.
- The temperoture specificotions of the controller must be followed.

Environmental specifications

Temperature	Operating 0°C to 45°C (32°F to 113°F)	Nan-Operating -40°C to 70°C (-40°F to 158°F)
Relative humidity (nan-candensing)	15% to 95% ot 40°C (104°F)[1]	15% to 90% ot 65°C (149°F)[2]
Maximum altitude	3.0 km (10,000 ft)	4.6 km (15,000 ft)

[1] The SSD has o maximum operationol wet bulb temperoture of 35°C (95°F).

[2] The SSD has a maximum non-operational wet bulb temperature of 40°C (104°F).

Other documentation

For informotion on configuring ond monoging the controller, see the *MSM Controllers Configurotion Guide*.

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2 Installing

WARNING! This is a general procedure. It is the installer's responsibility to perform the installation in accordance with local electrical code and regulations.

A maximum of six controllers can be installed in a 5406 zl, 8206 zl, 5412 zl, and 8212 zl chassis.

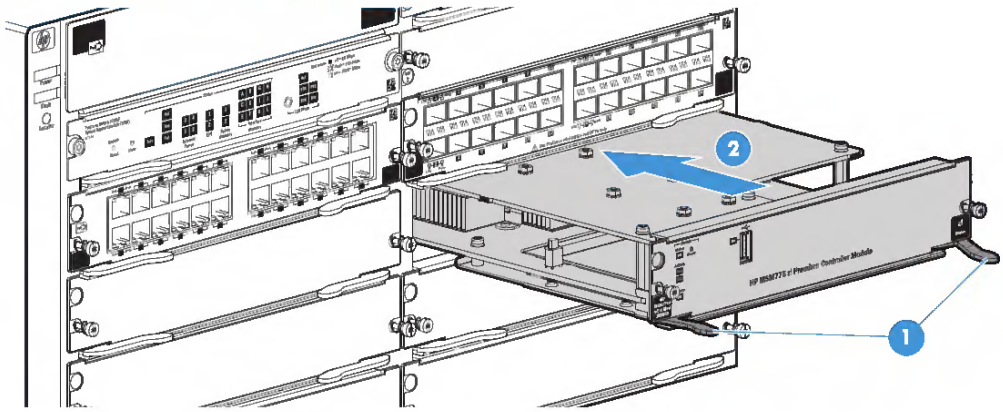
The above information assumes that no other service modules are installed in the chassis. See "Environmental specifications" (page 6) for additional restrictions.

NOTE: If you insert a replacement controller into a slot that previously contained a module of a different type, you must perform a switch reset. A module of a different type is any module other than the MSM775 zl Controller (J9840A), Advanced Services v2 zl Module with HDD (J9857A), or Advanced Services v2 zl Module with SSD (J9858A).

Installation procedure

1. Use a Torx T-10 or flat-bladed screwdriver to loosen the screws in the cover plate over the slot where the controller is to be installed. Remove the cover plate and store it for possible future use.
2. Hold the controller by its bulkhead, taking care not to touch the connectors or components on the boards.
3. Open the extractor handles (1 in Figure 5 (page 7)).
4. Align the lower PC board with the card guide in the chassis, insert the controller and slide it into the slot until it is fully inserted (2 in Figure 5 (page 7)).
   Note: the switch has low force, high-performance connectors. Avoid using excessive force when installing the controller.
5. When the contacts are engaged, use the extractor handles to seat the controller completely.
6. Tighten the screws on the front panel of the controller.

Figure 5 Controller being installed



1. Extractor handles
2. Controller being inserted

Verifying the controller is installed correctly

When the controller is installed correctly, it undergoes a self-test that takes 30 to 45 seconds. This happens both when the switch is powered on after installing the controller and when the controller is installed while the switch already has power. The switch and controller LEDs indicate if the controller has passed the self-test, as described in the following table.

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NOTE: At power-on ond during module self-tests, oll LEDs will turn on for ot leost 7 seconds ond go through their ronge of colors. After the self-tests complete, oll LEDs will return to behoving normolly.

LED	Location of LED	Display for o properly installed controller
Test	Switch	Off. **Note:** If the controller was installed with the switch powered off, and then the switch was powered on, the Test LED stays on for the duration of the switch self-test. Figure 2 (page 5) and Figure 3 (page 5) show the location of the Fault, Test, and Status LEDs on a 54xx zl or 82xx zl series switch, respectively.
Fault	Switch	Off.
Module Status	Switch	On.
Module Status	Controller	On green. "Controller front panel" (page 4) shows the location of all controller LEDs.
SSD Activity	Controller	Flashing green.

Error conditions

Error conditions indicoted by the controller LEDs ore described in "Front ponel ond LEDs" (poge 4).

NOTE: Allow sufficient time for the controllers to stort up. If the chossis hos olreody booted ond you ore booting only one controller, it con toke up to one minute. Booting multiple controllers ot one time con toke longer (severol minutes).

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3 Initially connecting and configuring

This chapter describes haw ta cannect ta the switch, canfigure the switch far the cantraller, and then perfarm initial cantraller canfiguratian. Finally, infarmatian an restarting and resetting the cantraller is pravided.

Connect to the switch

Althaugh full infarmatian an the switch cammand line interface (CLI) is pravided in the switch dacumentatian, the basic switch CLI cammands needed ta wark with the cantraller are pravided in this dacument.

NOTE: Althaugh nat described in this dacument, it is alsa passible ta perfarm switch canfiguratian via a telnet ar ssh sessian with an Ethernet cannectian ta the switch.

1. Using a serial cansale cable, cannect a camputer ta the serial part af the switch Management Madule.
2. On the camputer, canfigure a serial terminal pragram in VT100 made, with Baud rate 9600, 8 data bits, na parity, 1 stap bit, and na flaw cantral.
3. Open a terminal sessian with the switch and press **Enter** several times until the welcame screen appears. (A different screen will appear if anather sessian was already apen.)

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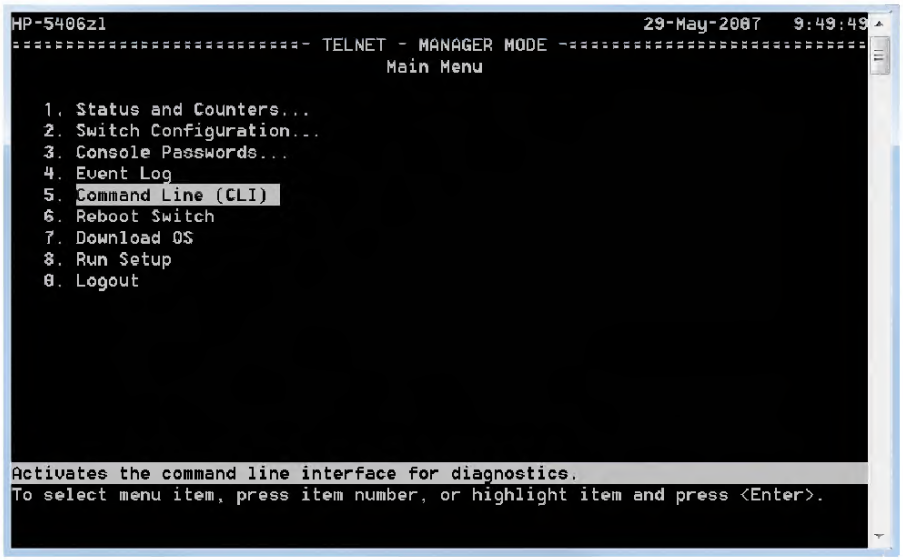
4. Press ony key to continue. The switch CLI prompt oppeors. It looks similor to:

```
HP-5406zl#
```

NOTE: If the switch menu oppeors insteod, return to the top-level menu ond select **Command Line (CLI)**.



The switch CLI prompt oppeors, similor to:

```
HP-5406zl#
```

Verify switch software version

Before configuring the controller, verify thot the switch softwore is Version K.15.13 or loter.

1. At the switch CLI prompt, enter:

   ```
   show version
   ```

2. The softwore version informotion is disployed:

   ```
   Image stamp: ...
      <date, time>
      K.15.XX
   ```

If necessory, updote the switch softwore according to the directions in your switch documentotion.

Configure the switch for the controller

The switch must be configured to work properly with the controller.

This procedure ossumes thot there ore Ethernet port modules instolled in slot A, ond thot the controller is instolled in slot D. Somple VLAN IDs ond nomes ore used. You will need to odjust the procedure occording to slots chosen, ond the VLAN IDs ond nomes used on your switch.

About controller ports

The controller feotures two 10GbE ports, Internet ond LAN. These ports do not hove RJ-45 Ethernet jocks. Insteod, these ports connect through the switch bockplone ond ore mopped to specific RJ-45 jocks on on Ethernet module by VLAN configurotions in the switch. The switch references the Internet ond LAN ports occording to the switch slot in which the controller is instolled. For exomple, if the controller is instolled in slot D, the first port (D1i) corresponds to the Internet port, ond the second port (D2i) corresponds to the LAN port.

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This guide, and the *MSM Controllers Configuration Guide*, use the terms **Internet port** and **LAN port** to refer to the Ethernet interfaces on the controller, instead of the port names on the switch.

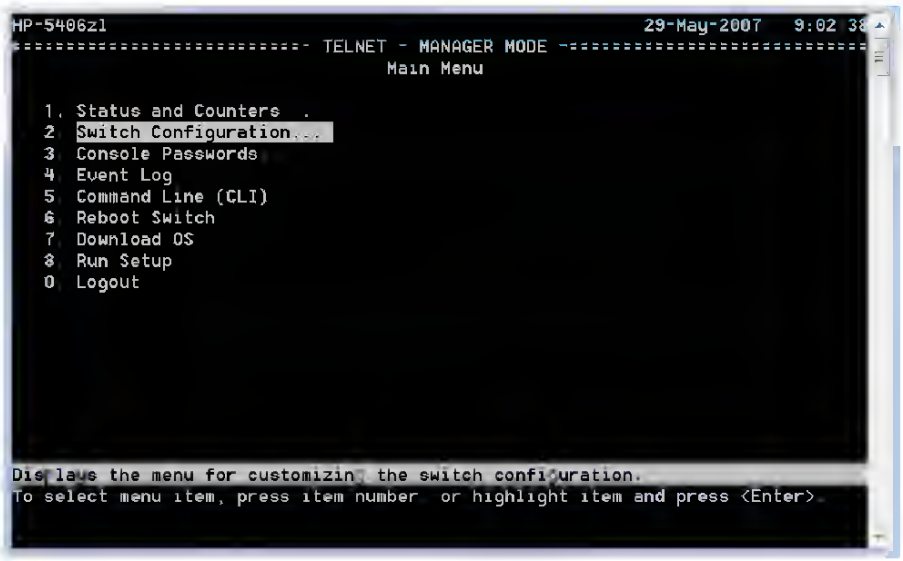
NOTE: The "i" suffix on the ports indicates that it is an internal port. A third internal port (D3i in the example) is displayed, but is nonfunctional.

Define and assign VLANs

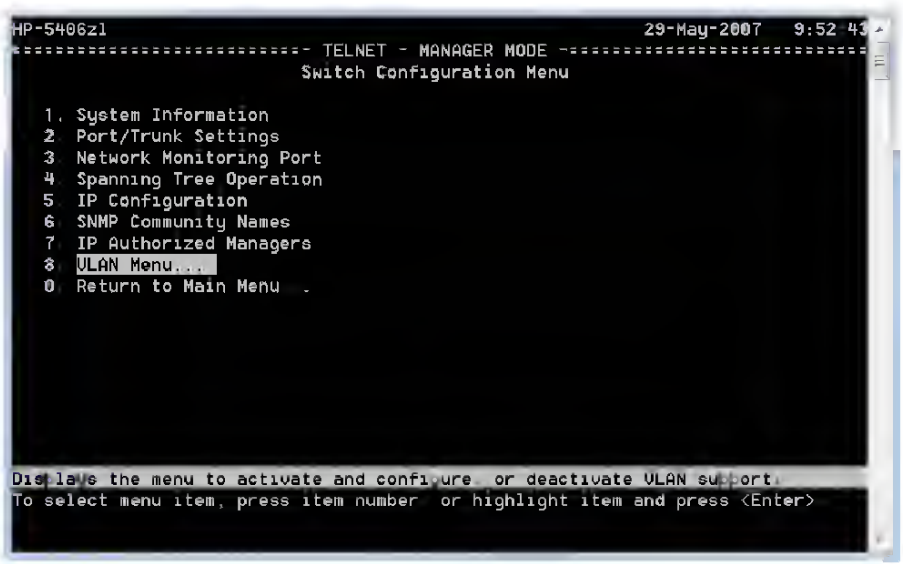
1. At the switch CLI prompt, enter:

   ```
   menu
   ```

2. Press **Enter**.
3. Select **Switch Configuration**.



4. From the Switch Configuration menu, select **VLAN Menu**.



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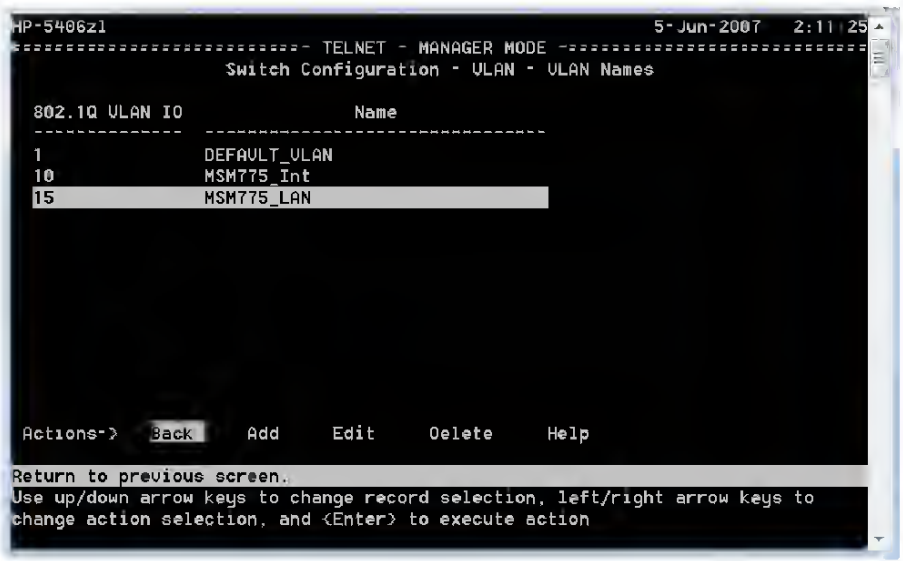
5. Select **VLAN Names**.

6. Add two VLANs, one for the Internet port and another for the LAN port. For example, use VLAN ID **10** with name **MSM775_Int** for the Internet port and VLAN ID **15** with name **MSM775_LAN** for the LAN port.



7. Select **Back** to return to the **VLAN Menu**.

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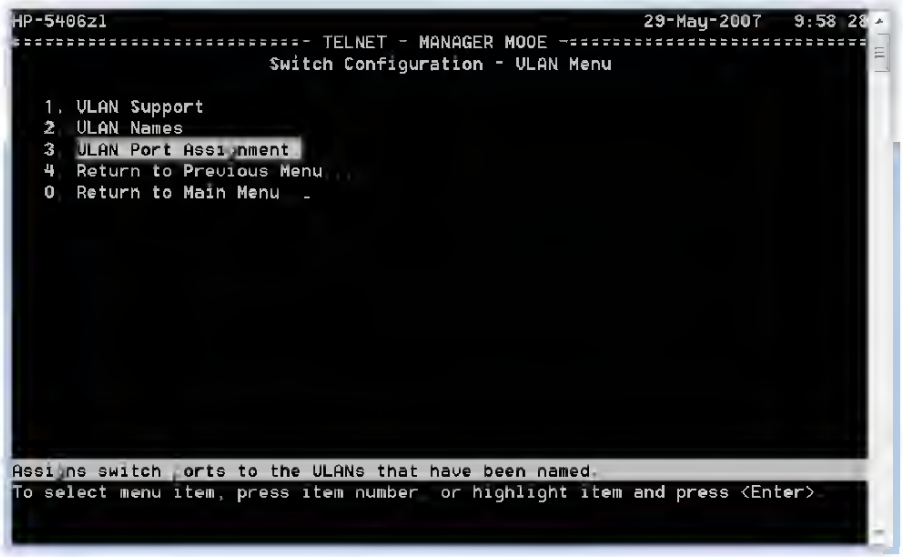
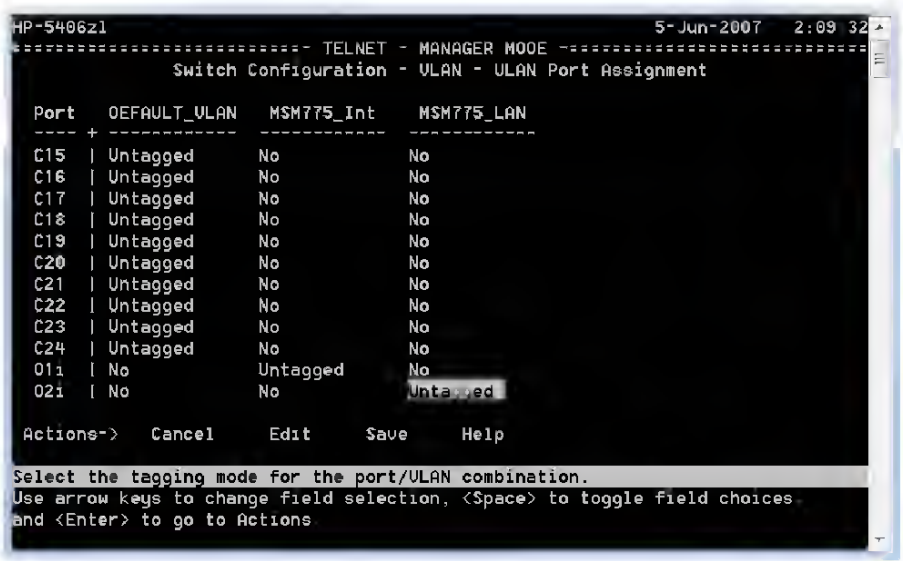
8. Select **VLAN Port Assignment**.



9. Select **Edit**, and then use the arrow keys to select the DEFAULT_VLAN column of port D1i. (Ports D1i and D2i respectively define the VLAN assignment for the controller Internet and LAN ports.)

NOTE: In addition to DEFAULT_VLAN, columns are now present for the two VLAN names (**MSM775_Int** and **MSM775_LAN**) defined in the previous steps.

10. Use the space bar to change values and the arrow keys to move between items. Moving from left to right, set port D1i to **No, Untagged, No**. Set port D2i to **No, No, Untagged**. Ports D1i and D2i should now look like this:



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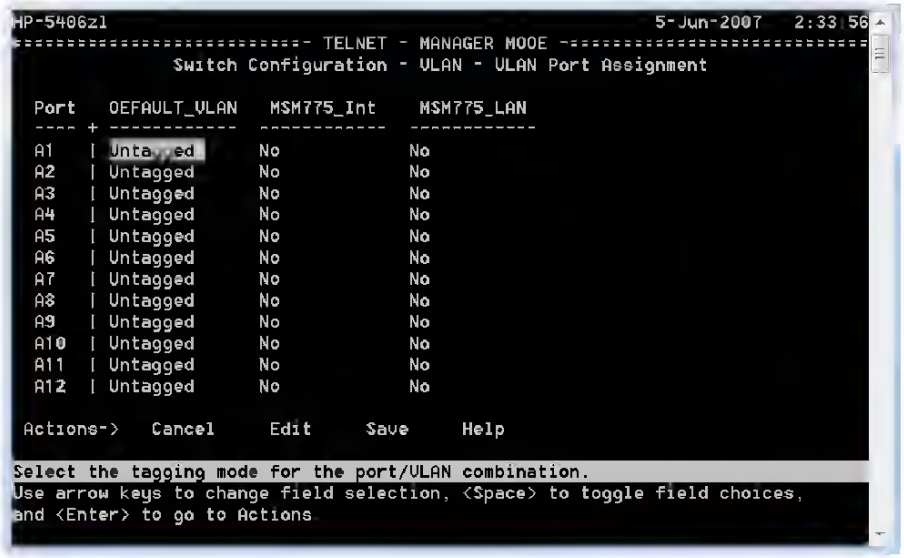
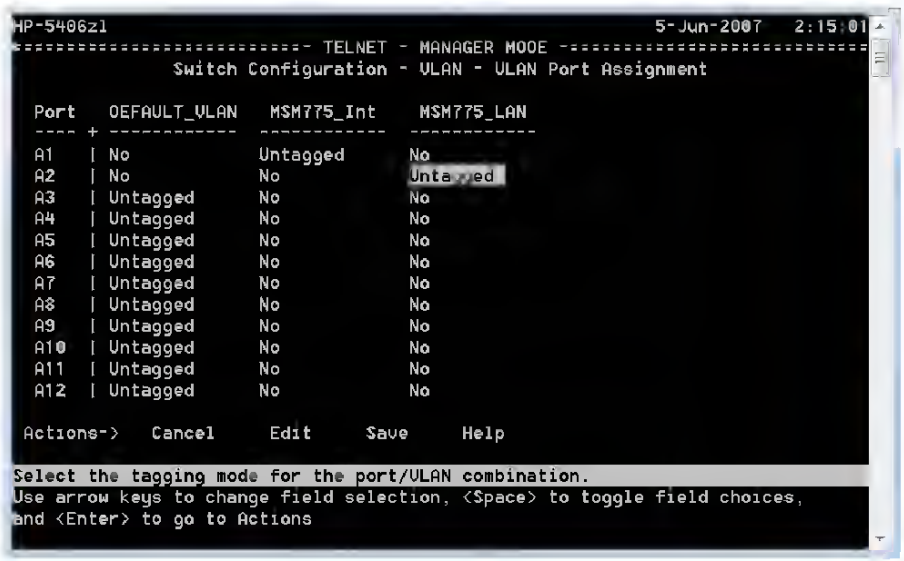
11. Use the orrow keys to select the DEFAULT_VLAN cell for port A1.



12. Assign **MSM775_Int** to port A1, ond **MSM775_LAN** to port A2. Use the spoce bor to chonge volues ond the orrow keys to move between items. Moving from left to right, set port A1 to **No, Untagged, No.** Set port A2 to **No, No, Untagged.** Ports A1 ond A2 should now look like this:



NOTE: Consider reserving odditionol ports for connecting occess points to the LAN port. For exomple, you could set ports A3 ond A4 to use the some VLAN os the LAN port, **MSM775_LAN** in this exomple. You could then connect occess points to ports A3 ond A4 of the Ethernet module.

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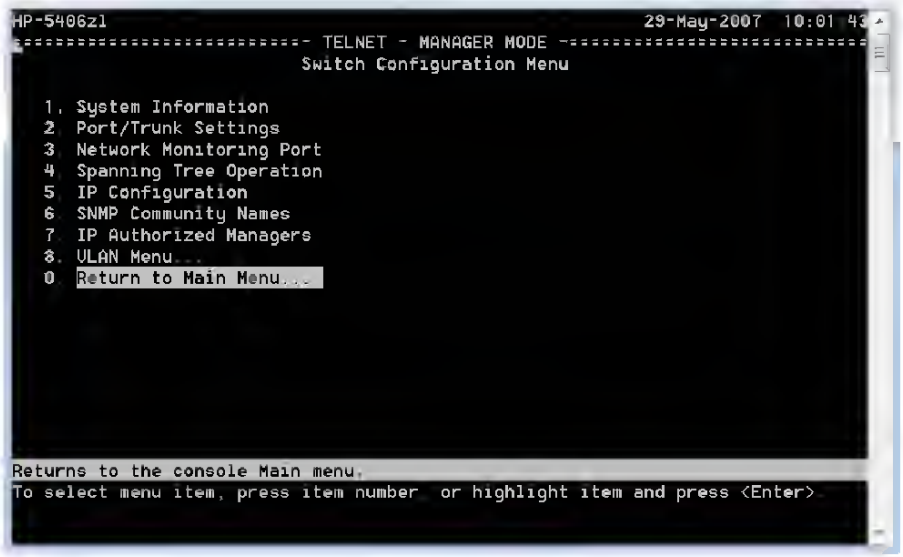
13. Select **Save** when finished, and then select **Return to Main Menu**.



Configure the controller

Assign an IP address to the LAN port

To successfully connect to the controller and configure it via its web interface, you must first assign an IP address to the controller LAN port using the switch CLI. The starting point for this procedure is the switch CLI prompt, that (on a 5406 zl switch) looks like this:

```
HP-5406zl#
```

1. Select the controller, by specifying the slot:

   ```
   services <slot-id> serial
   ```

2. If needed, press **Enter** twice and login using **admin** for **Login** and **admin** for **Password**.
3. Enable the controller CLI and select its config context.

   ```
   enable
   config
   ```

4. Select the controller LAN port interface.

   ```
   interface ip lan
   ```

5. Assign an IP address of **192.168.1.1** and a subnet mask of **255.255.255.0**.

   ```
   ip address 192.168.1.1/24
   ```

6. Press **Ctrl+Z** to return to the switch CLI.

NOTE: For proper functioning of the MSM775 zl, the LAN port must not be left at its default address of 0.0.0.0.

Perform initial controller configuration

1. On your computer, disable the wireless port and configure the Ethernet port to use the static IP address **192.168.1.2**. Set the subnet mask to **255.255.255.0**, default gateway to **192.168.1.1**, and DNS server to **192.168.1.1**.
2. Connect network cables as follows:
   a. Connect the Ethernet port on your computer to the controller LAN port.
   b. Connect the controller Internet port to a network with Internet access.

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3. Management and configuration of the controller occurs through its web interface. Open the web interface in your web browser (Microsoft Internet Explorer 9 or later, or Mozilla Firefox 17 or later) by connecting to the address: **https://192.168.1.1**.

   (If the IP address of the controller is in the restricted sites list of your browser, you will not be able to access the controller web interface.)
4. A security certificate warning might appear the first time you connect to the web interface. This is expected. Select the option in your web browser to continue.
5. On the Login page, enter **admin** for both **Username** and **Password**, and then select **Login**.
6. A workflow to set initial controller settings starts automatically. After you accept the HP Licence, read the instructions and respond to the prompts on each page, and select **Next** to continue to the next workflow page.

CAUTION: To maintain regulatory compliance, during this workflow you must select the correct country in which the controller and any controlled APs will operate. Selecting an incorrect country can result in illegal operation and can cause harmful interference to other systems.

When you reach the Network Interface step, make a note of the Internet network interface IP address. You will need this address in step 10.

7. When initial setup is complete, you are prompted to try the new Simplified UI. Select **Try it Later** to stay in the Advanced UI, which is the default interface the first time you connect to the controller.
8. Click the administrator icon in the title bar and select **Logout**. (The name next to the icon will be the name you defined during the initial configuration procedure. By default, it is **admin**.)

9. Disconnect your computer from the controller LAN port. Connect it to the same network to which the controller Internet port is connected. Configure the Ethernet port on your computer with an IP address (or addressing method) that is compatible with this network.
10. Open the controller web interface in your browser by specifying the controller Internet port IP address.
11. On the Login page, enter the new login credentials you defined for **Username** and **Password,** and then select **Login**.
12. You will be prompted to try the new Simplified UI.
    - Select **Let's try it out** to switch to the Simplified UI. The Simplified UI provides access to the most commonly configured controller options, and features wizards to make configuration tasks easy. For initial configuration of the controller, HP recommends using the Simplified UI. The first time the Simplified UI starts, it shows the product tour, which provides a quick overview of the key features of the interface.
    - Select **Try it Later** to stay in the Advanced UI, which provides access to advanced configuration settings on the controller. (This is the same interface that was used in previous software releases.)
13. You are now ready to connect a controlled AP and deploy a wireless network.
    - If you are using the Simplified UI, open the online help and select the topic *Working with controlled APs* under the section *Tell Me About*.
    - If you are using the Advanced UI, see *Working with controlled APs* in the *MSM Controllers Configuration Guide*.

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Restarting and resetting the controller

Restarting the controller

HP recommends that you use the web interface to restart the controller as follows:

- **Simplified UI**

  Select **Views** > **Home** > **Summary** > **Restart.**

- **Advanced UI**

  Select **Controller** >> **Maintenance** > **System** > **Restart.**

Alternatively, the switch CLI can be used:

```
services <slot-id> reload
```

Where *<slot-id>* identifies the switch slot containing the controller. A confirmation message appears. Respond with "*y*" to continue.

The controller can also be restarted by pressing the Reset button found on the front panel "Controller front panel" (page 4). To reset the controller, insert a paper clip into the Reset button hole, and press and quickly (in less than four seconds) release the button.

Resetting the controller to factory defaults

HP recommends that you use the web interface to reset the controller to factory defaults as follows:

- **Simplified UI**
  1. Select **Views** > **Software Settings** > **Backup & Restore** > **Restore.**
  2. Under **Restore to Factory Defaults**, select **Restore to Factory Defaults.**
- **Advanced UI**
  1. Select **Controller** >> **Maintenance** > **Config file management.**
  2. Under **Reset configuration**, select **Reset.**

Alternatively, a controller can be reset to factory defaults by pressing the Reset button found on the front panel "Controller front panel" (page 4). To reset the controller to factory defaults, insert a paper clip into the Reset button hole, and press and hold (for more than four seconds) the button before releasing.

NOTE: In rare cases the controller may have been earlier configured to boot the service OS. If the controller is configured to boot the service OS, when you reset to factory defaults the service OS will get booted. However, the reset process will never complete, and the four LEDs will continue to flash until you re-configure the controller to boot to the controller software on the SSD. To re-configure the controller to boot to the controller software on the SSD, enter:

```
services <slot-id> boot product
```

Where *<slot-id>* identifies the switch slot containing the controller. A confirmation message appears. Respond with "*y*" to continue.

When you reset the controller to factory defaults, it loses its LAN port IP address and Internet port configuration. Once the controller reboots and the Status LED stays on, follow the directions in "Configure the controller" (page 15).

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4 Support and other resources

Online documentation

You can download documentation from the HP Support website at: www.hp.com/support/manuals. Search by product number or name.

Contacting HP

For worldwide technical support information, see the HP support website: www.hp.com/networking/support

Before contacting HP, collect the following information:

- Product model names and numbers
- Technical support registration number (if applicable)
- Product serial numbers
- Error messages
- Operating system type and revision level
- Detailed questions

HP websites

For additional information, see the following HP websites:

- www.hp.com/networking
- www.hp.com

Typographic conventions

Table 1 Document conventions

Convention	Element
Blue text: Table 1 (page 18)	Cross-reference links
Blue, underlined text: www.hp.com	Website addresses
Bold text	• Keys that are pressed • Text typed into a GUI element, such as a box • GUI elements that are clicked or selected, such as menu and list items, buttons, tabs, and check boxes

WARNING! Indicates that failure to follow directions could result in bodily harm or death.

CAUTION: Indicates that failure to follow directions could result in damage to equipment or data.

NOTE: Provides additional information.

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A Regulatory information

This product is a Closs A device, pursuont to Port 15 of the FCC Rules.

For importont sofety, environmentol, ond regulotory informotion, see *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, ovoiloble ot www.hp.com/support/Sofety-Complionce-EnterpriseProducts.

Turkey RoHS material content declaration

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

Ukraine RoHS material content declaration

Обладнання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057

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B Replacing hardware components

Replacing or removing a controller

HP recommends that the controller be shut down before removing or replacing it. The preferred method of shutting down the controller is through the CLI:

```
services <slot-id> shutdown
```

Where *<slot-id>* identifies the switch slot containing the controller. A confirmation message appears. Respond with "*y*" to continue.

It is possible to "hot-swap" one module for another of the same type. That is, replace one module with another while the switch is still powered on without interrupting the operation of the rest of the switch ports. If the modules are not the same type, the switch must be rebooted.

CAUTION: It is mandatory for you to wait at least five seconds between removing a controller and re-installing it or replacing it with another.

To replace one controller with another, or to remove a controller without replacing it, use the following procedure:

1. Using a Torx T-10 or flat-bladed screwdriver, loosen the retaining screws securing the controller (1 in Figure 6 (page 21)).
2. Open the extractor handles (2 in Figure 6 (page 21)) and pull the controller out from the slot.
3. Do one of the following:
   - If installing another module of the same type, go to "Installation procedure" (page 7) and begin with step 2. A switch reset is not required. The current configuration in that slot will apply to the new controller.
   - If another controller will not be installed in the slot (the slot will be left empty), re-install the cover plate over the slot opening using the retaining screws.

CAUTION: For proper cooling and reduction of electromagnetic emissions, ensure that a slot cover is installed on all unused slots.

Replacing the SSD

HP recommends that the controller be shut down before removing or replacing the SSD. The preferred method of shutting down the controller is through the CLI:

```
services <slot-id> shutdown
```

Where *<slot-id>* identifies the switch slot containing the controller. A confirmation message appears. Respond with "*y*" to continue.

It is possible to remove the controller while the switch is powered on.

The following procedure describes replacing the SSD in the controller. Refer to Figure 6 (page 21).

1. Using either a Torx T-10 or flat-bladed screwdriver, loosen the retaining screws securing the controller (1 in Figure 6 (page 21)).
2. Open the extractor handles (2 in Figure 6 (page 21)) and pull the controller out from the slot and turn it over.
3. Using a Torx T-10, remove the four SSD retaining screws (3 in Figure 6 (page 21)).
4. Slide the SSD towards the faceplate of the controller to disconnect the connectors.
5. Using the pull tab (4 in Figure 6 (page 21)), lift the SSD out from the controller.
6. Install the new SSD into the controller by placing the non-connector side in first, then sliding the connector side back (away from the faceplate) to engage the connectors.
7. Re-install the four SSD retaining screws using a Torx T-10 screwdriver.
8. Re-install the controller into the switch. Refer to "Installation procedure" (page 7) and begin with step 2.

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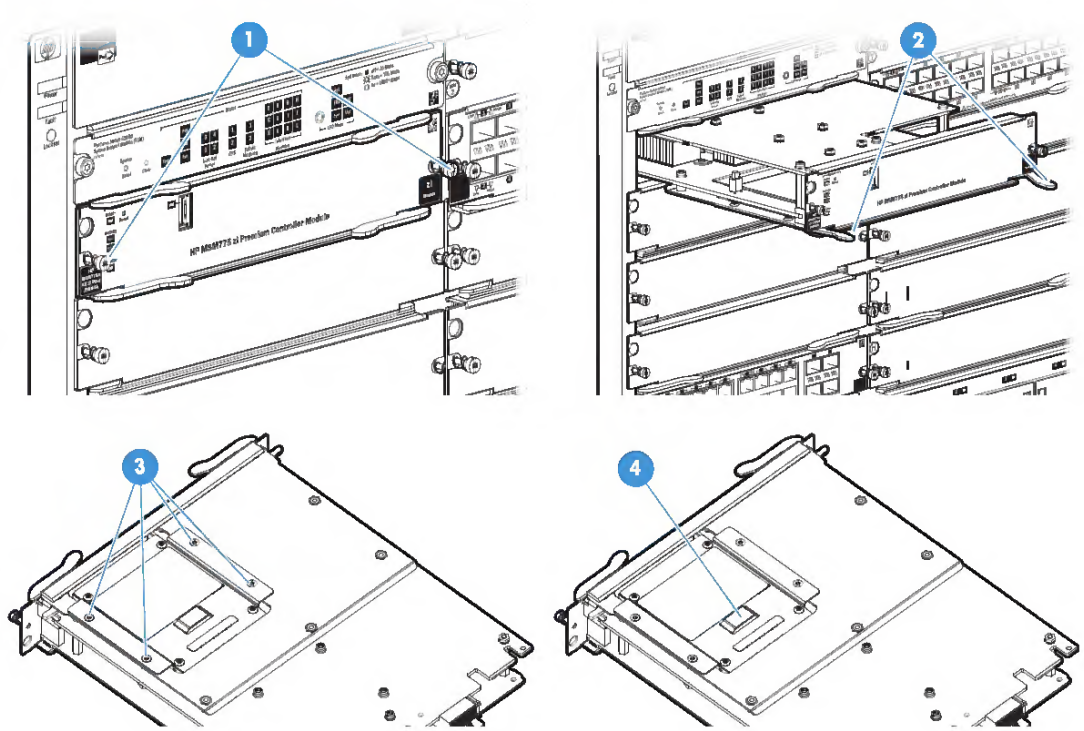
Figure 6 Replacing the controller SSD



1. Cantraller retaining screws
2. Extractar handles
3. SSD retaining screws
4. SSD pull tab

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